

THE
ONTARIO WATER RESOURCES
COMMISSION

WATER POLLUTION SURVEY

of the

POLICE VILLAGE OF VERNER

TOWNSHIP OF CALDWELL

September, 1965

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REPORT ON

A

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INTRODUCTION

The purpose of this investigation was to up-date a previous OWRC water pollution survey of the Police Village of Verner made on October 16, 1958. The results of the 1958 survey indicated the need for a communal sewage works. It was recommended by the OWRC that a sewage works be provided for the village. There has been no action taken to implement this recommendation.

Surveys of this nature are conducted routinely and upon request throughout the province by the Ontario Water Resources Commission as a basis for evaluating any existing or potential sources of pollution.

Recommendations are made pertaining to water pollution abatement, and the Commission expects that corrective measures will be taken by those concerned.

The field work was performed on May 18, 1965. Mr. L.E. Demers, Clerk-Treasurer of the Township of Caldwell was interviewed at this time. The co-operation received from the municipal officials is appreciated.

I GENERAL

The Police Village of Verner is located on the north shore of the Veuve River in the Township of Caldwell about 12 miles above Lake Nipissing and 11 miles west of Sturgeon Falls.

Physiographically the land around Verner is flat. The area is covered with about one foot of top soil which overlies a 5 to 9 foot

deep stratum of heavy brown clay. There is a formation of grey clay below the brown clay stratum to a depth of 120 feet. These clay formations are relatively impervious.

The population of Verner is approximately 920. The only industry within the municipal boundaries is the Verner Co-Operative Creamery located on the south-west corner of D'Youville Street South and River Street. It was reported that a number of the local residents are employed by industries located in the larger urban centres.

Surface run-off waters discharge to Bigquette Creek and the Veuve River via open ditches and storm sewers. The Veuve River drains Nepewassi Lake and flows through 20 miles of farmland before reaching Verner. The land of the watershed has little top soil, overlying a stratum of brown clay. The river is a turbid slow-moving stream at Verner.

The Biquette Creek is the only tributary of the Veuve River which flows through Verner. In addition, four other natural drainage gullies in the village, running in a north-south direction, carry surface run-off water and sewage wastes to the Veuve River.

II WATER USES

(1) Municipal Water Works

Water is taken from the Veuve River, chlorinated and pumped through pressure filters into the distribution system. A 32,700 Imperial gallon water tower provides storage and is installed

above the pressure filters.

At the time of this inspection a chlorine residual of 0.1 ppm was obtained in the water leaving the pumphouse. This is unsatisfactory as the Commission recommends that a minimum chlorine residual of 0.5 ppm be maintained on surface water supplies without complete treatment.

The municipality has been giving consideration to the construction of a complete water treatment plant and has engaged a consulting engineer to prepare a report.

It is recognized that the Veuve River is not a very satisfactory source of water supply. At present, the supply is subject to pollution from sanitary wastes discharged to the river above the water works intake. This condition requires the maintenance of effective chlorination and treatment procedures at all times.

(2) Private Water System

There are no private water systems in the Police Village of Verner that would come under the OWRC Act. However, some consumers on the municipal supply and others not serviced by this supply draw water for drinking and cooking purposes from four private wells located within the municipality.

(3) Industrial Water Supplies

The Co-operative Creamery in Verner obtains water from a privately owned drilled well and a service connection to the municipal distribution system. The Village water is used for clean-up purposes only.

(4) Recreational

There is minimal, if any, recreational use made of the surface waters in this area.

(5) Agricultural

It was reported that upstream from Verner considerable agricultural use is made of the Veuve River. Cattle watering probably is the primary use.

III WATER POLLUTION

(1) Sanitary Waste Disposal

(a) Existing Conditions - Very poor environmental conditions exist in this municipality as a result of the sanitary wastes from private homes and businesses being discharged to storm sewers and open ditches and eventually to Biquette Creek and the Veuve River.

There are an undetermined number of septic tank disposal systems installed within the municipality. They are not considered to operate very satisfactorily because of the poor soil conditions which exist throughout the area.

Because of the impervious clay soil very little rain or waste water seeps away through the ground. Most of the drainage reaches the river, while some is trapped in low spots and eventually evaporates.

At three different locations upstream from the Verner Water Works intake, sanitary wastes are discharged to the Veuve River. The existence of these conditions creates a very serious pollution problem.

(b) Proposed Sewage Works - In May, 19655, Mr. E.M. Powell, P. Eng., of E.M. Powell and Associates, Consulting Engineers and Land Surveyors, Sudbury, Ontario, presented a "Sewer Report" to the Police Village of Verner.

After considerable deliberation the Trustees of the Police Village voted against the construction of municipal sewage works in February, 1956. In a letter addressed to the Department of Health, they stated: "The Trustees are not in favour of installing sewers and sewage treatment in this community for the following reasons:

The installation of a sewage system will not greatly improve the water condition and will cost too much for a village of this size and financial capacities."

To date, no part of the proposed sewage works has been constructed. The engineering report provided for a gravity flow sewer system, sewage disposal plant and outfall sewer. The proposed sewer system was designed to serve all but fifteen of the buildings existing in 1955 by gravity flow. The omitted premises were so situated that geographic conditions demanded a sewage pumping station.

(2) Refuse Disposal

Domestic garbage from the Police Village of Verner is disposed of in an abandoned gravel pit in the Township of Caldwell.

There appear to be no water pollution problems caused by this dump.

(3) Industrial Waste Disposal

Verner Co-op Creamery - This creamery is the only industry located within the limits of the police village. All wastes, sanitary and industrial are discharged directly to the Veuve River.

As previously mentioned the creamery obtains water from two sources; a privately owned drilled well and the municipal supply. Reportedly the industry operates all year processing approximately 368,000 lbs. of butter. It is difficult to determine the waste loadings exerted by this industry on the Veuve River as there are no consumption figures available.

(4) Discussion of Laboratory Results

Samples were collected from the ditches, storm sewers, Biquette Creek and the Veuve River, and submitted to the Ontario Water Resources Commission Laboratory for chemical analysis and bacteriological examination. The laboratory results and a glossary of terms are appended to this report.

Wastes exhibiting the characteristics of sanitary sewage were observed in two of three ditches namely FV-84.7 D and FV-84.7 D-1, discharging to the Veuve River upstream from the water works intake. The chemical analysis of the samples collected from these ditches revealed low BOD values and suspended solids concentrations which indicates that the sewage has decomposed and has been oxidized

by natural processes in the open ditches above the river. The bacteriological examination revealed gross bacterial pollution. Analyses of samples collected from the partially submerged Verner Co-op Creamery outfall revealed 5-Day BOD and suspended solids concentrations in excess of the OWRC recommended maximum of not greater than 15 ppm for both values. The waste also contained coliform organisms in excessive concentrations.

Samples collected from a ditch draining the east part of Verner and corssing Racette Street just east of Dubeau Street revealed, when analyzed, 57 ppm, 5-Day BOD and 60 ppm suspended solids. There were 59 million coliform organisms per 100 ml present in the sample collected.

Bacteriological examination of samples collected from Biquette Creek upstream and downstream from the St. Laurent Avenue storm sewer, indicated 490,000 coliform organisms per 100 ml in the sample downstream and only 460 coliform organisms in the sample collected upstream.

Analyses of samples collected from the Principal Street storm sewer waste discharge revealed excessive chemical and bacteriological concentrations.

Analyses of samples collected from the Veuve River downstream from the Police Village of Verner indicate the 5-Day BOD and coliform organisms concentration were within the Commission's water quality objectives.

The slow-moving, turbid Veuve River dilutes these objectionable wastes. Based on the grab samples collected downstream of Verner during the survey, the BOD, suspended solids and coliforms are reduced to concentrations which meet recognized stream standards.

A sample collected from the Veuve River at the water works intake revealed the presence of 39 Escherichia coliform organisms which are intestinal organisms found in the intestinal tract of warm blooded animals.

IV SUMMARY AND CONCLUSIONS

A water pollution survey of the Police Village of Verner was made on May 18, 1965. The main sources of pollution were located and sampled.

Surface run-off water and domestic sewage from the village are discharged to the Veuve River and Biquette Creek by a series of direct connections, open ditches, culverts and community drains. The laboratory results indicate that gross bacteriological pollution enters the river above the water works intake from two open ditches.

A ground water investigation conducted in April, 1958, by International Water Supply Limited suggests that ground water should not be depended upon as a source of supply.

It would be advisable to construct an adequate surface water treatment plant rather than proceed with a costly test drilling program which may fail to locate a satisfactory well supply.

In order to protect the existing water works, it is necessary to intercept the sewage entering the river above the water works intake. There is an urgent need to construct sewage works which will eliminate sources of pollution to the Veuve River above the water works intake.

V RECOMMENDATIONS

The practice of discharging polluting wastes from the municipal and private drains in Verner to Biquette Creek and the Veuve River should be discontinued.

All of which is respectfully submitted.

District Engineer



A. B. Redekopp, Dist. Engineer.

Approved by

bw

J. R. Barr, Director.

Table 1-1

Sampling Point <u>No.</u>	<u>Description</u>	<u>Date</u>	5-Day BOD (ppm)	<u>S O L I D S</u> (ppm)			Turbidity in Silica <u>Units</u>	M.F. Coliform Count/100 ml	EST. DWF (gpm)
				Total	Susp.	Diss.			
FV-84.7	Veuve R. up- stream from the Police Village of Verner.	May 18/65.	1.1	96	12	84	-	90	-
FV-84.7 D	Ditch draining Cartier St. & crossing railway tracks immediately east of Cartier St.	May 18/65.	6.4	284	18	266		300,000	5
FV-84.8 P	4" ♂ private tile drain just north of railway tracks east of Levis Street.	May 18/65.		WASTE FLOW FROM THIS DRAIN COLLECTED AT SAMPLING POINT FV-84.7 D-1.					
FV-84.8 P-2	4" ♂ private tile drain just north of railway tracks and east of Levis Street.	May 18/65.		WASTE FLOWS FROM THIS DRAIN COLLECTED AT SAMPLING POINT FV-84.7 D-1.					

Table 1-2

<u>Sampling Point No.</u>	<u>Description</u>	<u>Date</u>	<u>5-Day BOD (ppm)</u>	<u>S O L I D S</u> (ppm)			<u>Turbidity in Silica Units</u>	<u>M.F. Coliform Count/100 ml</u>
FV-84.8 P-3	4" Ø private tile drain just north of railway tracks and east of Levis St.	May 18/65.	WASTE FLOWS FROM THIS DRAIN COLLECTED AT SAMPLING POINT FV-84.7 D-1.					
FV-84.8 W	24" x 20" wooden storm sewer just north of railway tracks and east of Levis Street.	May 18/65.	WASTE FLOWS FROM THIS DRAIN COLLECTED AT SAMPLING POINT FV-84.7 D-1.					
FV-84.8 P-4	4" Ø private tile drain just north of railway tracks and east of Levis Street.	May 18/65.	WASTE FLOWS FROM THIS DRAIN COLLECTED AT SAMPLING POINT FV-84.7 D-1.					
FV-84.7 D-1	Ditch carrying waste flows from private drains and storm sewers at railway tracks just east of Levis Street.	May 18/65.	6.4	516	16	500		780,000

Table 1-3

<u>Sampling Point No.</u>	<u>Description</u>	<u>Date</u>	5-Day BOD	<u>S O L I D S</u> (ppm)			Turbidity in Silica	M.F. Coliform	EST. DWF
			(ppm)	<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>	<u>Units</u>	<u>Count/100 ml</u>	<u>(gpm)</u>
FV-84.6 W	18" ø concrete storm sewer, south of Principal St. just west of Water Works.	May 18/65.							
				THERE WAS BLACK SEPTIC SEWAGE IN THE DITCH. NO FLOW, JUST LYING IN STAGNANT PONDS.					
FV-84.5	Veuve River at water works intake.	May 18/65.					MPN		
							E. Coli		
							39		
FVB-84.8	Biquette Cr. @ Highway #17.	May 18/65.	1.4	106	6	100			460
FVB-84.8 W	18" ø concrete storm sewer, north- west corner of D'Youville and Verchere Streets.	May 18/65.		SLUDGE DEPOSITS AND GREY SEPTIC SEWAGE WERE SEEN BELOW THE OUTFALL. THE FLOW WAS UNSUFFICIENT FOR SAMPLING.					
FVB-84.7 W-1	15" ø concrete storm sewer at east end of St. Laurent St.	May 18/65.	280	1142	372	770		29 x 10 ⁷	7
FVB-84.7	Biquette Cr. just south of St. Laurent St.	May 18/65.	5.0	168	18	150		490,000	

Table 1-4

<u>Sampling Point No.</u>	<u>Description</u>	<u>Date</u>	<u>5-Day BOD (ppm)</u>	<u>S O L I D S (ppm)</u>	<u>Turbidity in Silica</u>	<u>M.F. Units</u>	<u>EST. DWF Count/100 ml (gpm)</u>
			Total	Susp.	Diss.		
FVB-84.7 P	6" Ø private tile drain from church, north side of Principal St. and east of Biquette Cr.	May 18/65.	SLUDGE DEPOSIT, GREY SEPTIC SEWAGE PONDED AT THE OUTFALL.				
FVB-84.7 W	14" Ø concrete storm sewer north side of Principal St. west bank of Biquette Cr.	May 18/65.	65	712	67	645	123×10^6 5
FVB-84.7 P-1	4 " Ø private tile drain south side of Principal St. and east bank of Biquette Cr.	May 18/65.	BLACK SEPTIC SEWAGE PONDED AT THE OUTFALL.				
FVB-84.6 W	12" Ø concrete storm sewer, east bank of Biquette Cr. north of railway tracks.	May 18/65.	BLACK SEPTIC SEWAGE PONDED IN THE DITCH AT THE OUTFALL.				
FVB-84.5	Biquette Cr. @ the mouth.	May 18/65.	1.4	94	10	84	69,000

Table 1-5

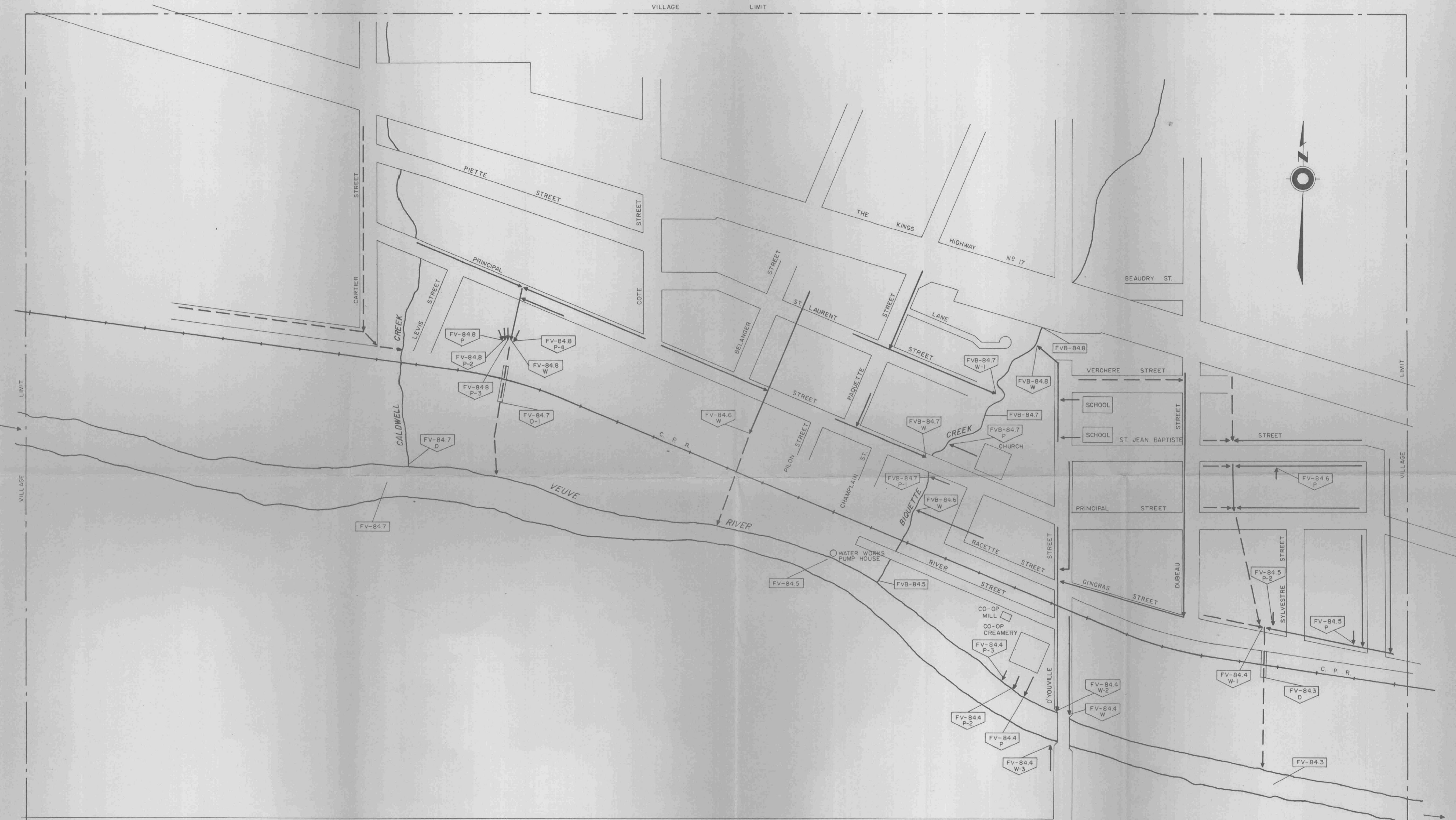
<u>Sampling Point No.</u>	<u>Description</u>	<u>Date</u>	<u>5-Day BOD (ppm)</u>	<u>S O L I D S</u> (ppm)			<u>Turbidity in Silica Units</u>	<u>M.F. Coliform Count/100 ml</u>	<u>EST. DWF (gpm)</u>
FV-84.4 P-3	4 " Ø private drain from Verner Co-op Creamery.	May 18/65.	NO FLOW NOTED						
FV-84.4 P-2	4" Ø private drain from Verner Co-op Creamery.	May 18/65.	NO FLOW NOTED						
FV-84.4 P	14" Ø concrete private drain from Verner Co-op Creamery.	May 18/65.	55	164	50	114	OUTFALL PARTIALLY SUBMERGED	1,120,000	20
FV-84.4 W-2	20" Ø concrete storm sewer, north bank of Veuve R. and west side of D'Youville St. bridge.	May 18/65.	NO FLOW NOTED						

Table 1-6

Sampling Point No.	Description	Date	5-Day	S O L I D S			Turbidity	M.F.	EST.
			BOD (ppm)	Total	Susp.	Diss.	in Silica Units	Coliform Count/100 ml	DWF (gpm)
FV-84.4 W	14" ϕ concrete storm sewer, north bank of Veuve R. east side of D'Youville St. bridge.	May 18/65.	NO FLOW NOTED						
FV-84.6 P	4" ϕ private tile drain south side of St. Jean Baptiste St. east of Dubeau St.	May 18/65.	BLACK SEPTIC SEWAGE PONDED AT OUTFALL						
FV-84.4 W-1	16" ϕ concrete storm sewer, north side of Gingras St., just east of Dubeau St.	May 18/65.	WASTE FLOW FROM THIS OUTFALL COLLECTED AT SAMPLING POINT FV-84.3D.						3
FV-84.4 W-3	16" ϕ concrete storm sewer, south bank of the Veuve R. west side of D'Youville St.Bridge.	May 18/65.	NO FLOW NOTED						

Table 1-7

<u>Sampling Point No.</u>	<u>Description</u>	<u>Date</u>	<u>5-Day BOD (ppm)</u>	<u>S O L I D S</u> (ppm)			<u>Turbidity in Silica Units</u>	<u>M.F. Coliform Count/100 ml</u>
FV-84.5 P-2	4" Ø private tile drain, north side of Gingras St., and west of Silvester St.	May 18/65.	BLACK SEPTIC SEWAGE AND SLUDGE DEPOSITS NOTED AT OUTFALL.					
FV-84.3 D	Ditch carrying waste flows from private drains and storm sewer at railway tracks south of Gingras St. and west of Silvester St.	May 18/65.	57	668	60	608		59 x 10 ⁶
FV-84.3	Veuve R. downstream from Verner.	May 18/65.	1.4	112	8	104		680
FV-84.5 P	6" Ø private tile drain, north side of Gingras Street, east of Silvestre Street..	May 18/65.	NO FLOW NOTED					



LEGEND

- [FV-84.3] - STREAM SAMPLING POINT SHOWING STREAM AND MILEAGE
- [FV-84.3 D] - STREAM AND MILEAGE AT OUTFALL
 - D - OPEN DITCH
 - P - PRIVATE
 - W - STORM SEWER
- EXISTING DRAIN OR CULVERT
- OPEN DITCH

ONTARIO WATER RESOURCES COMMISSION

POLICE VILLAGE OF VERNER
TOWNSHIP OF CALDWELL
WATER POLLUTION SURVEY

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